REMARKS

This is intended as a full and complete response to the Office Action dated November 5, 2003, having a shortened statutory period for response set to expire on February 5, 2004. Please reconsider the claims pending in the application for reasons discussed below.

Claims 1-47 are pending in the application and are shown above. Claims 1-11 and 22-36 stand rejected and claims 12-21 and 45-47 are allowed. Claims 37-42 are withdrawn from consideration as being drawn to a non-elected invention. Applicants confirm the election of Group I, claims 1-36 and 43-47. Applicants reserve the right to pursue the subject matter of claims 37-42 in a divisional application at a later date. Reconsideration of the rejected claims is requested for reasons presented below.

Allowable Subject Matter

A copy of the corrected Office Action Summary and page 9 of the Office Action has been re-issued by the Examiner on January 30, 2004. As indicated by the corrected Office Action Summary and page 9 of the Office Action, claims 12-21 and 45-47 are allowed.

As indicated by the corrected page 9 of the Office Action, claims 3 and 27 stand objected to by the Examiner and would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 4-7, 9, 28-29, 31, and 35-36 stand objected to by the Examiner because they depend from claims that would be allowable if their parent claims were incorporated into their corresponding independent claims.

Applicants have canceled claims 3 and 27 without prejudice and added new claims 48 and 49. New claims 48 and 49 represent claims 3 and 27 rewritten in independent form, respectively, without adding new matter. Applicants reserve the right to pursue the subject matter of claims 3 and 27 in a divisional application at a later date. Further, Applicants have amended 4-6, 9, 28-29, and 31 to be dependent from independent claims 48 and 49, representing claims 3 and 27 rewritten in independent

form. Accordingly, applicants respectfully request allowance of claims 4-7, 9, 28-29, 31, 35-36, and 48-49.

35 U.S.C. §102 Rejection

Claims 1-2, 8, 11, 22-26, 30, 32, 34, and 43-44 are patentable over *Reid* under 35 U.S.C. §102(e)

Claims 1-2, 8, 11, 22-26, 30, 32, 34, and 43-44 stand rejected under 35 U.S.C. 102(e) as being anticipated by *Reid* (U.S. 6,458,262). The Examiner states that *Reid* teaches determining a relationship between cell resistance (*i.e.*, conductivity) of an electrochemical cell and concentration of conductive species since cell resistance and conductivity are considered the same and they are dependent on each other. The Examiner further states that similar processes can reasonably be expected to yield products which inherently have the same properties. Applicants respectfully traverse this rejection.

Reid discloses a method for monitoring and controlling an electroplating process The method includes removing an organic fraction of a sample of electrolyte to give a substantially organic-free electrolyte sample, determining the density of the substantially organic-free electrolyte sample, determining at least one of the conductivity and the light absorption of the substantially organic-free electrolyte sample, comparing at least one of the conductivity and the light absorption measurement of the substantially organic-free electrolyte sample with the density in order to determine a concentration value for each of the metal salt and the acid of the substantially organic-free electrolyte sample, and adjusting conditions of the electroplating process in response to a comparison of the concentration value for each of the metal salt and the acid, with an associated target value. (*See*, Summary of the Invention.) Thus, *Reid* depends on various measurements of the substantially organic-free electrolyte sample, not measurements of a sample of the electrolyte. Claims 1-2, 8, 11, 22-26, 30, 32, 34, and 43-44, as recited, do not depend on the presence or any measurements from an organic-free electrolyte sample. In addition, *Reid* compares the relationship between the conductivity and/or light absorption measurements with the measurement of the density of the substantially organic-free electrolyte sample. Therefore, *Reid* does not teach, show, or suggest determining a relationship between cell resistance of an

electrochemical cell and concentration of conductive species, as recited in claims 1, 22, and 43, and claims dependent therefrom.

Furthermore, Applicants disagree with the Examiner's statement with regard to *Reid's* conductivity measurements and cell resistance measurements of an electrochemical cell, as recited in the claims, are considered the same. First of all, *Reid* measures the conductivity of a substantially organic-free electrolyte sample and does not teach, show, or suggest cell resistance measurements of an electrochemical cell. Secondly, *Reid*'s conductivity (κ, in the unit of Ω^{-1} cm^{-1}) measurement of a substantially organic-free electrolyte sample is the reciprocal of resistivity (ρ, in the unit of Ω-cm), which is a property/nature of the substantially organic-free electrolyte sample; whereas cell resistance (R, in the unit of Ω) of an electrochemical cell is related to the ratio of the voltage (V) and current (I) of the electrochemical cell, according to the Ohm's law relationship: R= V / I, and is dependent upon thermodynamic variables (*e.g.*, the temperature of the electrolyte), process variables, (e.g., the flow rate of the electrolyte), and the composition of the electrolyte, as well as the geometry of the electrochemical cell (*e.g.*, size and shape).

In addition, *Reid* does not teach, show, or suggest measuring an electrochemical parameter (*e.g.*, an electric current or voltage, *etc.*) of the electrochemical cell, as recited in claims 1, 22, and 43, and claims dependent therefrom. Therefore, *Reid* does not teach, show, or suggest determining a test concentration of conductive species based upon the determined relationship and the electrochemical parameter, as recited in claims 1, 22, and 43, and claims dependent therefrom.

Accordingly, Applicants respectfully request withdrawal of the rejection, and respectfully request allowance of the claims.

35 U.S.C. §103 Rejections

Claims 10 and 33 are patentable over *Reid* under 35 U.S.C. §103(a)

Claims 10 and 33 stand rejected under 35 U.S.C. 103(a) as being obvious over *Reid* (U.S. 6,458,262). The Examiner states that *Reid* does not teach the cell resistance or the difference in anode to cathode cross sectional areas and it would have

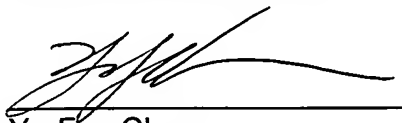
been obvious within the ordinary skill in the art to have has a series resistance which is less than the cell resistance because it is well known that the lower the resistance is, the more efficient the electrochemical process can be. The Examiner further states that *Reid* does not teach the difference in size between the anode and cathode cross sectional areas and it would have been obvious within the ordinary skill in the art to have kept the sizes relatively similar because too great a deviation would have decreased cell efficiency. Applicants respectfully traverse this rejection.

Reid is discussed above.

As point out by the Examiner, *Reid* does not teach, show, or suggest the cell resistance or the difference in anode to cathode cross sectional areas, or the difference in size between the anode and cathode cross sectional areas. In addition, as discussed above, *Reid* does not teach, show, or suggest determining a relationship between cell resistance of an electrochemical cell and concentration of conductive species, measuring an electrochemical parameter of the electrochemical cell, and determining the test concentration of conductive species based upon the relationship and the electrochemical parameter, as recited in claims 1 and 22, which claims 10 and 33 depend from. Accordingly, applicants respectfully request withdrawal of the rejection, and respectfully request allowance of the claims.

In conclusion, the references cited by the Examiner, alone or in combination, do not teach, show, or suggest the invention as claimed. Having addressed all issues set out in the office action, Applicant respectfully submits that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,



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